

Why do we need a systems perspective?

Tackling sustainability and social challenges

Taking a systems perspective of food is necessary because food systems are complex, and many of the sustainability and social inclusion challenges facing them, arise from what can be surprising interactions between their diverse components.

Food systems are complex

The systems that have evolved to produce, distribute, and consume food are complex. This is partly because of the diversity of their components from natural resources and agriculture, through food processing and distribution, to nutrition and human health¹. But it is also because the interactions between these diverse activities are largely self-organised across thousands of actors via markets and commercial contracts. Both of these factors make it difficult to identify causal relationships, and efficient ways of influencing them, to address challenges beyond the ability of markets to resolve².

For example, interactions between consumer perceptions of healthy eating and convenience have implications for packaging and waste management that affect the distribution and lifecycle greenhouse gas emissions of food. Supermarkets have evolved as the most efficient food environment for most of the population but may be crowding out alternative food systems that would work better for other groups in society³. Many sustainability issues such as climate change arise from the unpriced consequences of market-based activities, and efficient and system-wide public leadership is likely to be required to meet these and other non-market societal goals.

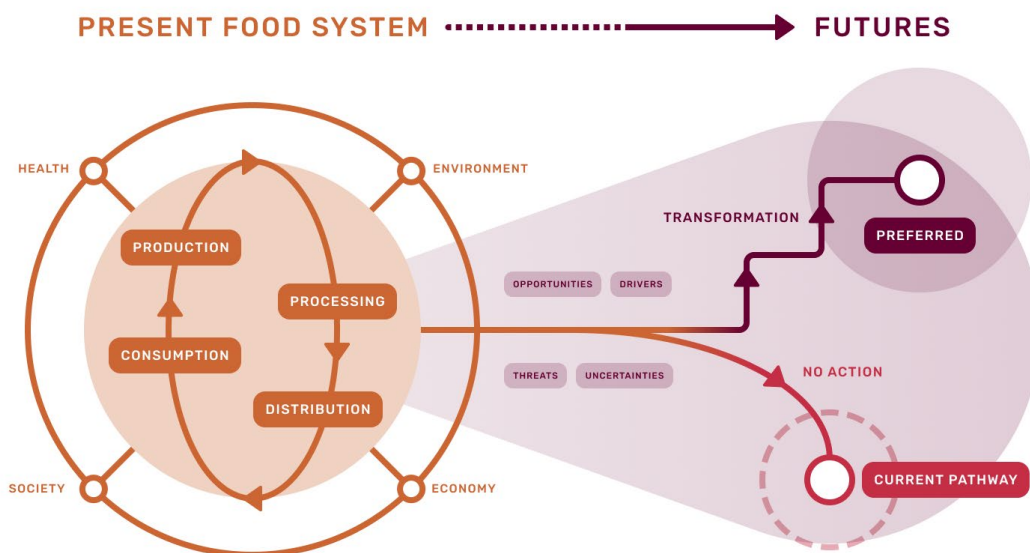


Figure 1 Projecting food systems into the future.

Future food systems

Taking a systems perspective also helps diverse participants across the food system to think imaginatively about what future food systems could look like and can provide a practical foundation to collectively start moving in preferred directions (figure 1)⁴. Food systems are dynamic because they are responsive to diverse drivers of change. Systems thinking helps to understand the interactions between system components that result from multiple pressures for change, to identify the types of transformative action required to work towards previously unimagined futures.

Markets are not enough

Taking a systems perspective is becoming increasingly essential for managing the scale and complexity of the challenges facing our national food system. The Australian economy, like other industrialised economies around the world, has long benefited from a focus on economic efficiency, and our agriculture and food sectors have been part of this economic success⁵. Markets are important to food systems because they communicate incentives to produce food from consumers to producers via prices. But an over-reliance on markets has resulted in a range of challenges that are either unintended by-products of market-related activity, or are important societal goals that profit-focussed businesses have little or no commercial incentive to provide.

Most sustainability challenges such as land degradation, greenhouse gas emissions, pests and diseases and biodiversity loss are unintended by-products of market-based activities. And at best, markets can only provide muted incentives for important societal goals such as social inclusion, cultural diversity, nutrition, and health because consumers have proven reluctant to pay significantly more for food. An expectation that others will meet the costs of addressing sustainability challenges creates a ‘free-rider’ dynamic that makes it difficult to motivate collective action.

Future pathways for addressing these issues are likely to involve creating cross-sectoral coordination mechanisms that enable more holistic management of the food system. The origins of sustainability issues and social challenges, as a by-product of commercial activities focused on short-term profit, are likely to require the development of novel, efficient and durable models of public leadership – examples of which have begun to emerge⁶.

Coordination complements specialisation

Food policy has been fragmented across the food system⁷. This partly reflects the benefits of specialisation, which has favoured expert management of each component of the food system. However, an almost exclusive focus on specialisation means that the coordination mechanisms necessary to address these broader societal goals are either absent or underdeveloped.

Dimensions of food systems thinking⁸

Breaking path dependencies

Taking a systems perspective helps to identify and address *path dependencies* and *lock-ins* in food systems. Path dependency and lock-ins occur when past events, investments, behaviours, or decisions constrain and reinforce subsequent events, investments, behaviours and decisions. We can become reliant on existing technologies not because they are the best option, but because they are familiar and deeply embedded in our current ways of doing things. The scale and scope of economies associated with existing technologies disadvantages new and potentially better technologies, which, as a result, need considerable public investment to develop the capabilities and infrastructure necessary to support their use.

An example in Australia is the degree to which food systems are dominated by a small number of large supermarket chains. The scale and consistency advantages of highly concentrated food distribution and

marketing networks are offset by the potential for market power to exclude more sustainable and socially inclusive alternatives. And it is difficult and costly to test alternative industry structures which are naturally protected by the businesses that currently profit from them. This means that the future institutions, businesses and communities that could potentially benefit from alternative structures lack a voice in current political processes.

Re-orienting food systems

Taking a systems perspective helps to understand and manage the dynamic nature of food systems. Food systems are, and always have been dynamic and continuously evolving - driven by market demands, technological development, supply shocks and the pursuit of business efficiencies and profit. Unfortunately, the degree to which the market-driven trajectory of food systems development is path dependent means that the system is unlikely to be able to reorient itself to achieve sustainability and social goals.

Path dependencies and lock-ins mean that changing the direction of food systems needs purposeful and system-wide action. The scale of coordination required, and the need to realign incentives, implies a proactive role for public leadership. The process of achieving these wide ranging and integrated sets of changes is highly uncertain and will need to be approached experimentally to find ways to adapt current systems in ways that align with the values which we collectively want future food systems to express.

Food systems thinking in Australia

Food systems thinking has already begun to shape Australian food related policy, and related public conversations about the future food systems that Australians want. Examples include:

- In December 2023, Australia was signatory to a COP28 statement “recognising that unprecedented adverse climate impacts are increasingly threatening the resilience of agriculture and food systems...”
- In November 2023 the Standing Committee on Agriculture of the Parliament of Australia released the findings of an inquiry into the strengthening and safeguarding of food security in Australia
- CSIRO’s 2023 food systems roadmap *Reshaping Australian Food Systems* conducted extensive consultation that raised awareness of food systems and issues affecting them
- Ahead of the United Nations Food Systems Summit in 2021, Australia convened multiple dialogues to provide an opportunity for participants to debate, collaborate, and take action towards a better future for food systems
- Established in July 2019, the Future Food Systems Cooperative Research Centre connects leading Australian universities with industry and government bodies to deliver impactful research into future food systems
- The recently awarded Zero Net Emissions from Agriculture Cooperative Research Centre adds another dimension to the integration of sustainable practices and agricultural and food production and consumption practices.

References

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Food System Horizons – Catalysing a sustainable, nutritious, and equitable food system future
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